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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Jianli Shi

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EXAMINER

LANGMAN, JONATHAN C

ART UNIT

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1794

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,919	Applicant(s) SHI ET AL.	
	Examiner JONATHAN C. LANGMAN	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 4 is objected to because of the following informalities: The applicant states "wherein first the layer", and it appears that the applicant means to say "wherein the first layer". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 1, the applicant has not shown, and the Examiner can not find support for the coating "on an interior surface" and "deposited on the interior surface" of the steam generating device.

Regarding claims 2-8, 10, 17, and 18, they are rejected for being dependent upon a base rejected claim.

Regarding claim 9, the applicant amended the thicknesses to read "between 30 and 100" microns for the first layer. However, the applicant is only supported for

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“around 30 microns” to up to 100 microns as shown in the originally filed specification on page 3, lines 26. Furthermore, the applicants’ new range for the hydrophilic layer is between 10 and 25 microns. The applicant teaches that the hydrophilic layer is “about 15 microns” and “between 1 and 15 microns” in the originally filed specification (page 4, lines 2, and originally filed claim 9). The applicant does have support for specific layers, such as Ludox and Silica being 10 and 25 microns respectively (pg 4, line 25, and page 5, line 5, respectively); however, the applicant is not supported for firstly the broad range of 10-25 microns (namely all points lying between 10 and 25 microns), and secondly for the specific range of thicknesses of the broad materials that encompass a “hydrophilic layer”. Rather the applicant only has support for specific materials and thicknesses.

Regarding claim 11, the applicant has not shown, and the Examiner can not find where the applicant has support within the originally filed specification for the new limitation “wherein the first coating is selected to adhere to a metal surface of the steam generating device. The closest description is when the applicants describe sub adhesion layers placed between the substrate and the first layer.

Regarding claims 12 and 15, the applicant uses the term “substantially” to describe the compositions of the first and second layers. The applicant has not specifically recited the term “substantially” within the originally filed specification. The closest example the examiner can find is when the applicant teaches “the same” composition.

Furthermore, regarding claims 12 and 15, it is recited that the properties are determined by applying different technique to deposit each of the layers or for claim 15 where it is recited that the properties are determined by picking different binder to filler ratios. The only property discussed in the originally filed specification with respect to the different techniques or ratios is porosity.

Regarding claims 13 and 14, they are rejected for being dependent upon a base rejected claim.

Regarding claim 16, the applicant has not shown and the Examiner can not find any support for the first and second layers being selected to have a composition that is thermally stable. The layers may inherently be thermally stable, but there is no support for the limitation of choosing the layers based on their thermal characteristics.

Regarding claim 19, the applicant has not shown and the Examiner can not find any support for the first and second layers being selected to be cured during a same cycle. The applicant teaches co-curing to increase adhesion, however, there is no support for the limitation of choosing the layers based on their ability to be co-cured.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-15 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 12 and 15, it is unclear as to what degree “substantially” covers and the applicant has not defined the term “substantially”. Can substantially be small differences in composition or large differences in composition? The applicant needs to clarify this matter.

Regarding claim 13, it is unclear as to what degree “close” encompasses. What distance is “close”? Clarification is needed.

Regarding claim 14, these claims are rejected for being dependent upon a base rejected claim.

Claim 18 recites the limitation “the inorganic particles”. There is insufficient antecedent basis for this limitation in the claim. It appears that the applicant means to depend this claim from claim 17. Clarification is needed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-8, 10, 16, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Krautter et al. (US 4,576,864).

In regards to claims 1 and 10, Krautter et al. teach a water spreading layer attached to a base. The water spreading layer (applicants instantly claimed second layer) is attached through an adhesive layer (applicants instantly claimed first layer).

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The adhesive layer comprises a polymer material that should absorb as little water as possible. The polymeric material must be insoluble (Krautter et al., col. 5, lines 15-28). Polymer materials are expected to be inherently thermally insulating to some degree. The top layer comprises metal oxides and is hydrophilic (col. 4, lines 33-37 and col. 5, line 54). Krautter et al. do not specifically state that these layers are used in a steam generating device, however these layers are more than capable of being applied in a steam generating device.

However, the recitation in the claims that the coating is “for an interior surface of a steam generating device” is merely an intended use. Applicants attention is drawn to MPEP 2111.02 which states that intended use statements must be evaluated to determine whether the intended use results in a structural difference between the claimed invention and the prior art. Only if such structural difference exists, does the recitation serve to limit the claim. If the prior art structure is capable of performing the intended use, then it meets the claim.

It is the examiner's position that the intended use recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art and further that the prior art structure is capable of performing the intended use. Given that Krautter et al. discloses a coating comprising a first layer impermeable to water and a hydrophilic layer thereon, as is presently claimed, it is clear that the coating of Krautter et al would be capable of performing the intended use, i.e. for an interior surface of a steam generating device, presently claimed, as required in the above cited portion of the MPEP.

Regarding claim 2, Krautter et al. teach that the hydrophilic layer may be deposited from a sol gel method, using an aqueous colloidal suspension ((col. 4, lines 37-48) the sol-gel is deposited by spraying and then air dried. This deposition method is similar to the applicants, and therefore it is inherent that the hydrophilic layer will be porous. Furthermore, this layer is expected to have some degree of porosity (not 100% dense).

Regarding claim 3, Krautter teaches that the adhesive layer comprises polymers of amide structure (col. 6, lines 40-50). Furthermore, Krautter teaches that the polymer material can be modified with a methytrimethoxysilane (col. 7, lines 5-12). This modifier is taught in the instant application to be a hybrid sol-gel precursor. Thus it can be said that the adhesive layer that is modified by the methyltrimethoxysilane material is a sol gel derived material.

Regarding claim 4, Krautter teaches that the adhesive layer may be mix of organic and inorganic material, thus showing, that the layer also comprises inorganic material.

Regarding claims 6-8, and 18 the hydrophilic layer is deposited by sol/gel methods. Thus showing a sol-gel derived material. The sol is a colloid of silica particles with average particles sizes of less than 1 micron (col. 4, lines 37-48).

Regarding claim 16, the materials of Krautter are assumed to be thermally stable to some degree, furthermore this is supported because the materials of Krautter are similar to the materials instantly claimed.

Claims 1-3, 10, 16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Boulud et al. (US 5,390,432).

Regarding claims 1-3, and 10, Boulud et al. teaches coatings on the interior surface of a steam chamber of a steam pressing iron. The covering on the bottom of the chamber includes a first layer 11, and a second layer 20, wherein the layer 20 is constituted by a water permeable fibrous (porous) material having hydrophilic properties (col. 3, lines 60-65). The first layer 11, is preferably chosen to have good thermally insulating properties, and Boulud teaches that Enamel is a preferred embodiment (col. 3, lines 1-12). Enamel is taught by the applicant to be preferred for the first coating, therefore it is said to also be inherently "essentially impermeable to water". A material and its properties are inseparable, therefore it is expected that enamel will be impermeable to water. It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a *prima facie* case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The ***prima facie*** case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977). Furthermore Boulud teaches other materials that are impermeable to water such as cements, calcium carbonate, paints, carbonates and metallic oxides, Thus reading upon the instant claim 1 limitation of the first layer being "essentially impermeable to water".

Regarding claim 16, Boulud teaches that all the materials utilized are selected in a manner to withstand thermal conditions normally existing in the chambers (col. 5, lines 5-10) and thus are clearly inherently thermally stable.

Regarding claim 19, the step is a product by process step, the product of Boulud et al. is substantially similar to the product as presented in instant claim 1 therefore it is said to anticipate it. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”, (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

Claims 1, 2, 5-7, 10, 11, 16, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Boulud et al. (WO01/68971) referred to herein as WO where (US 6,684,539 is used as the reference).

Regarding claims 1, 2, 6, 7, 10, 11, and 18, WO teaches a cladding of a vaporization chamber of an iron. The cladding comprises layer 10 which is sodium

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silicate (applicants instantly claimed first layer), which adheres strongly to the aluminum body (interior of the steam chamber). The layer is treated with a mixture (col. 2, lines 20-23) of phosphorous bodies that preferably contains colloidal silica (inorganic) particles (col. 2, lines 24-59). It is expected and inherent that the treatment changes the composition of the first layer, since WO teaches chemical reactions of the first layer and the treatment, (col. 2, lines 23-38), thus forming a second layer on top of the first layer. Therefore the sodium silicate layer reads upon the instantly claimed first layer impermeable to water and is thermally insulating, and the second layer that is hydrophilic is the top portion of the sodium silicate layer that is treated with the phosphoric acid and silicate atoms. It is inherent and expected that that the treated layer (second layer) is hydrophilic since these layers are similar to the instantly claimed layers.

Regarding claim 5, the phosphorous bodies are aluminum triphosphate, which is a phosphate glasses.

Regarding claim 16, the materials of WO are assumed to be thermally stable to some degree, furthermore this is supported because the materials of Krautter are similar to the materials instantly claimed.

Regarding claim 19, the step is a product by process step, the product of WO et al. is substantially similar to the product as presented in instant claim 1 therefore it is said to anticipate it. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in

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the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”, (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO as applied above, in view of Boulud et al. (5,390,432).

As described above, WO teaches a coating for a steam chamber comprising a first layer of sodium silicate and a second coating of a fibrous hydrophilic material that is treated with a mixture of phosphate and colloidal silica. WO goes on to teach that some of the colloidal silica reaches the first layer of silicate material (col. 3, lines 28-32). However WO, does not teach any of the potential materials as instantly claimed in claim 3 for the first layer. Boulud et al. teaches that the first layer in a steam coating device

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may be an enamel or a sodium silicate (col. 3, lines 1-12). It would have been obvious to a person having ordinary skill in the art at the time the present invention was made to use enamel in the steam chamber first coating of WO since enamel and sodium silicate have been shown to be functional equivalents in the art. With the treatment, of the cladding layers as taught by WO, it is expected that the enamel will contain some inorganic particles of silica (WO, col. 3, lines 28-32).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Boulud or WO as applied above.

Boulud or WO do not teach specific material thicknesses for the layers, however, the thickness of a layer is well within the grasp of a routineer in the art. Furthermore, the applicant has not shown the significance of the film thicknesses. It would have been obvious to a person having ordinary skill in the art at the time the present invention was made to use any known thicknesses for the respective first and second layers, including those ranges instantly claimed, as determining a layer thickness has been shown to routine knowledge in the art.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO as applied above.

WO teaches a treatment to form a second layer, wherein the treatment comprises phosphate ions and silicate particles. The phosphate ions are preferred to be aluminum tri phosphate, However, WO fails to teach that the phosphate ions may be

mono-aluminum phosphate. However an obvious and functional equivalent to the aluminum triphosphate material is mono-aluminum phosphate.

Response to Arguments

The applicants argue that the coating of Krautter is not taught to be applied to an interior surface of a steam generating device and that an application over an interior surface of a steam generating device is more than a mere statement of intended use. The applicant supports this argument by stating that a coating that may be suitably applied to an interior portion of a steam generating device requires different properties than a coating that is applied to a plastic base (as is taught by Krautter). This argument is not commensurate because the claims as instantly stated do not preclude plastic surfaces to be coated.

The applicant also argues that the polymer adhesive of Krautter is not thermally insulating. The Examiner disagrees, the exemplary polymers taught by Krautter are all thermally insulating to some degree, and furthermore, the materials of Krautter are similar to the materials instantly claimed therefore they are said to be thermally insulating.

The applicant argues that a coating that is applied to interior surface of iron requires different properties than coating applied to plastic base. However, while applicants argue that the presently claimed coating would require different properties than coating applied to plastic, the applicants have not stated what these properties are or why the coating of Krautter would not have these properties. Given that Krautter

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disclose coating comprising first layer and second layer identical to that presently claimed, it is the examiner's position, absent evidence to the contrary, that the coating would have the same properties as presently claimed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN C. LANGMAN whose telephone number is (571)272-4811. The examiner can normally be reached on Mon-Thurs 6:30 am - 4:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCL

/Callie E. Shosho/

Supervisory Patent Examiner, Art Unit 1794